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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/405,618	09/24/1999	JAMES S. BLOMGREN	31876.0140	9689

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EXAMINER

CRAIG, DWIN M

ART UNIT PAPER NUMBER

2123

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/405,618

Applicant(s)

BLOMGREN ET AL.

Examiner

Dwin M Craig

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/24/99.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### DETAILED ACTION

1. Claims 1-25 have been presented for examination. Claims 1-25 have been rejected.

#### Drawings

2. The application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed. The drawings filed on 09-24-1999 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draft person's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Figure 1 and **Table 1** on page 5 of the specification should be designated by a legend such as --Prior Art-- because only that which is old is illustrated.

As concerns Figure 1 this drawing has been disclosed in the following reference  
**Giramma, U.S. Patent Number 5,706,476** in figure 1 of said reference.

As concerns Table 1, this was disclosed in **Giramma, U.S. Patent Number 5,706,476** in Colume 1 lines 35 to 50.

See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

**Specification - Improper Incorporation by Reference**

3. The attempt to incorporate subject matter into this application by reference to two applications (page 15, specification), which appear to consist of essential matter, is improper because there is insufficient identification so as to direct the Examiner or future potential readers to the referenced material. The Examiner requires this information in order to properly review Applicant's specification. Furthermore, if the current application issues as a patent before the two applications, Applicants will be required to physically incorporate the incorporated material into the instant specification. Please refer to section 608.01(p) which recites:

**"INCORPORATION BY REFERENCE**

The Commissioner has considerable discretion in determining what may or may not be incorporated by reference in a patent application. *General Electric Co. v. Brenner*, 407 F.2d 1258, 159 USPQ 335 (D.C. Cir. 1968). The incorporation by reference practice with respect to applications which issue as U.S. patents provides the public with a patent disclosure which minimizes the public's burden to search for and obtain copies of documents incorporated by reference which may not be readily available. Through the Office's incorporation by reference policy, the Office ensures that reasonably complete disclosures are published as U.S. patents. The following is the manner in which the Commissioner has elected to exercise that discretion. Section A provides the guidance for incorporation by reference in applications which are to issue as U.S. patents. Section B provides guidance for incorporation by reference in benefit applications; i.e., those domestic (35 U.S.C. 120) or foreign (35 U.S.C. 119(a)) applications relied on to establish an earlier effective filing date.

**A. Review of Applications Which Are To Issue as Patents.**

An application as filed must be complete in itself in order to comply with 35 U.S.C. 112.

Material nevertheless may be incorporated by reference, *Ex parte Schwarze*, 151 USPQ 426 (Bd. App. 1966). An application for a patent when filed may incorporate "essential material" by reference to (1) a U.S. patent, (2) a U.S. patent application publication, or (3) a pending U.S. application, subject to the conditions set forth below. "Essential material" is defined as that which is necessary to (1) describe the claimed invention, (2) provide an enabling disclosure of the claimed invention, or (3) describe the best mode (35 U.S.C. 112). In any application which is to issue as a U.S. patent, essential material may not be incorporated by reference to (1) patents or applications published by foreign countries or a regional patent office, (2) non-patent publications, (3) a U.S. patent or application which itself incorporates "essential material" by reference, or (4) a foreign application.

Nonessential subject matter may be incorporated by reference to (1) patents or applications published by the United States or foreign countries or regional patent offices, (2) prior filed, commonly owned U.S. applications, or (3) non-patent publications however, hyperlinks and/or other forms of browser executable code cannot be incorporated by reference. See MPEP § 608.01. Nonessential subject matter is subject

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matter referred to for purposes of indicating the background of the invention or illustrating the state of the art.

Mere reference to another application, patent, or publication is not an incorporation of anything therein into the application containing such reference for the purpose of the disclosure required by 35 U.S.C. 112, first paragraph. In re de Seversky, 474 F.2d 671, 177 USPQ 144 (CCPA 1973). **In addition to other requirements for an application, the referencing application should include an *identification of the referenced patent, application, or publication*.** Particular attention should be directed to specific portions of the referenced document where the subject matter being incorporated may be found. Guidelines for situations where applicant is permitted to fill in a number for Application No. \_\_\_\_\_ left blank in the application as filed can be found in In re Fouche, 439 F.2d 1237, 169 USPQ 429 (CCPA 1971) (Abandoned applications less than 20 years old can be incorporated by reference to the same extent as copending applications; both types are open to the public upon the referencing application issuing as a patent. See MPEP § 103).

#### 1. Complete Disclosure Filed

If an application is filed with a complete disclosure, essential material may be canceled by amendment and may be substituted by reference to a U.S. patent or an earlier filed pending U.S. application. The amendment must be accompanied by an affidavit or declaration signed by the applicant, or a practitioner representing the applicant, stating that the material canceled from the application is the same material that has been incorporated by reference.

If an application as filed incorporates essential material by reference to a U.S. patent or a pending and commonly owned U.S. application, applicant may be required prior to examination to furnish the Office with a copy of the referenced material together with an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the copy consists of the same material incorporated by reference in the referencing application. However, if a copy of a printed U.S. patent is furnished, no affidavit or declaration is required.

***Prior to allowance of an application that incorporates essential material by reference to a pending U.S. application, the examiner shall determine if the referenced application has been published or issued as a patent.*** If the referenced application has been published or issued as a patent, the examiner shall enter the U.S. Patent Application Publication No. or the U.S. Patent No. of the referenced application in the specification of the referencing application (see MPEP § 1302.04). ***If the referenced application has not been published or issued as a patent, applicant will be required to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating the amendatory material consists of the same material incorporated by reference in the referencing application.***

#### 2. Improper Incorporation

Reliance on a ***commonly assigned copending application*** by a ***different inventor*** may ordinarily be made for the purpose of completing the disclosure. See In re Fried, 329 F.2d 323, 141 USPQ 27 (CCPA 1964), and General Electric Co. v. Brenner, 407 F.2d 1258, 159 USPQ 335 (D.C. Cir. 1968). ***Since a disclosure must be complete as of the filing date, subsequent publications or subsequently filed applications cannot be relied on to establish a constructive reduction to practice or an enabling disclosure as of the filing date.*** White Consol. Indus., Inc. v. Vega Servo-Control, Inc., 713 F.2d 788, 218 USPQ 961 (Fed. Cir. 1983); In re Scarbrough, 500 F.2d 560, 182 USPQ 298 (CCPA 1974); In re Glass, 492 F.2d 1228, 181 USPQ 31 (CCPA 1974)."

**Claim Interpretation**

4. The claims have been “given the broadest reasonable interpretation consistent with the specification.” As per MPEP 2111.01.

Applicants appear to be claiming a multi-value logic nomenclature for describing the interconnection data types used in N-nary logic modeling, in particular, Applicant appear to be merely disclosing the same naming convention for multi value logic circuits as disclosed in the IEEE standard Multivalued Logic System for VHDL Model Inoperability.

It is noted that the claim prefaces (see claim 1, for example) recite “model” and “simulation”. However, the limitations are only directed at the *naming convention* for multi-value logic. The limitations are not directed at a model or a simulation and therefore the Examiner provides no patentable weight to “model” or “simulation”.

It was well known in the art at the time of the invention that Hardware Description Languages define data structures in computer system memories that describe the interconnection of logic gates in a digital logic device for the purpose of modeling and simulation of a digital logic device.

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claim(s) 1-25 are being rejected under 35 U.S.C. 102(b) as being clearly anticipated by Giramma "METHOD AND APPARATUS FOR USE OF THE UNDEFINED LOGIC STATE AND MIXED MULTIPLE-STATE ABSTRACTIONS IN DIGITAL LOGIC SIMULATION" U.S. Patent 5,706,476.** *Giramma* discloses, Taking as per claim(s) 1, 6, 11, 16 and 21 for example: A model that simulates logic signals capable of having more than two unique values and one or more unique drive states. **Col. 1, lines 20-63** and in claim 1 *Giramma* recites, "A computer-assisted logic gate simulation method for simulating a circuit that includes plural logic gates characterized by differing output state abstractions," whereby the unique driver states comprise: a signal value field *Giramma* discloses, "Those of skill in the art will appreciate that by directive production is meant any technique for signaling or otherwise communicating to a downstream connected primitive the possible next-state of its inputs based upon a transition of state of an output of an upstream primitive." **Col. 5, Lines 13-18.** *Giramma* recites a signal strength field, "In addition to these state abstractions, some logic simulators use a 3-state model coupled with essentially unlimited strengths or values." **Col. 1, Lines 51-53.** *Giramma* also teaches a signal definition field which comprises information that conveys whether the signal being modeled holds a defined value or an undefined value, "Also preferably, the 4-state abstraction includes an undefined state such as undefined state XS described above." **Col. 4, Lines 53-55.**

With respect to claims 2,7,12,17 and 22 *Giramma* discloses, "Those skilled in the art will appreciate that 32-bit 'zoom' words, in accordance with the preferred embodiment of the invention, are used to obtain indices into various tables for next-state logic evaluations." **Col. 6, Lines 51-54.**

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With respect to claims 3, 8, 13, 18 and 23 *Giramma* discloses, “Multiple-Value Logic 9-state model (MVL-9) of 0, 1, X at strong and resistive strengths or values, as well as high-impedance uninitialized, and undefined (0S,1S,XS,0R,1R,XR,Z,U,D). ” **Col. 1, Lines 46-49.**

With respect to claims 4,5,9,10,14,15,19,20,24 and 25 *Giramma* discloses in **TABLE 3, Col. 6 Lines 25-40.** In Table 3 a strongly driven signal strength field is set to “000” and the signal definition field holds a value of “000” when the logic signal being modeled is a valid defined signal.

6. **Claim(s) 1-25 are being rejected under 35 U.S.C. 102(b) as being clearly anticipated by the IEEE Standard Multivalued Logic System for VHDL Model Interoperability (Std\_logic\_1164).** *IEEE Standard Multivalued Logic System for VHDL Model Interoperability* discloses, with respect to claim(s) 1, 6, 11, 16 and 21, logic signals capable of having more than two unique values and one or more unique drive states. On **Page 2**, *IEEE Standard Multivalued Logic System for VHDL Model Interoperability* recites, SUBTYPE UX01Z IS resolved std\_ulogic RANGE ‘U’ TO ‘Z’; -- (‘U’, ‘X’, ‘0’, ‘1’, ‘Z’). *IEEE Standard Multivalued Logic System for VHDL Model Interoperability* recites on in **Annex A on Page 15**, “A.1 Value system...one must interpret the meaning of each of the elements as provided by the standard. Type std\_ulogic is ( ‘U’, Uninitialized state Used as a default value ‘X’, Forcing Unknown Bus contentions, error conditions, etc. ‘0’, Forcing Zero Transistor driven to GND ‘1’, Forcing One Transistor driven to VCC ‘Z’, High Impedance 3-state buffer outputs ‘W’, Weak Unknown Bus terminators ‘L’, Weak Zero Pull down resistors ‘H’, Weak One Pull up resistors ‘-’ Don’t Care Used for synthesis and advanced modeling); “ which is a signal value field in the Multivalued Logic System as well as a signal definition field. *IEEE Standard Multivalued Logic System for*



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*VHDL Model Interoperability* teaches on **Page 15, Annex A**; “ Therefore, a number of strength stripper functions have been designed to transform 'Z', 'W', 'L', 'H', and '-' into their corresponding forcing strength counterparts.” This teaches a signal strength field.

With respect to claims 2, 3, 7, 8, 12, 13, 17, 18, 22 and 23 *IEEE Standard Multivalued Logic System for VHDL Model Interoperability* teaches on **Page 15, Annex A**, “Forcing Zero Transistor driven to GND, Forcing One Transistor driven to VCC, Weak Zero Pull Down resistors, Weak One Pull up Resistors.

With respect to claims 4,5,9,10,14,15,19,20,24 and 25 it is noted that any value can be assigned to a data structure once it is allocated in a computer memory when a logic gate interconnection is defined using a data structure, as per the claim interpretations above.

### **Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwain M Craig whose telephone number is 703 305-7150. The examiner can normally be reached on 9:00 - 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703 305-9704. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

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DMC

July 12, 2002

  
DR. HUGH M. JONES  
PATENT EXAMINER  
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